#### **Evaluation and Analyzation of Outputs**

For at least **five** different prompts:

* Record the prompt, response, and settings used.
* Note:
  + How relevant and coherent is the response?
  + Are there inaccuracies or biases?
  + Does changing the settings impact the tone or depth?

The first prompt was: “Can you tell me a short story?” It also had a temperature of 0.5, max\_tokens of 5000, a top\_p of 0.7, and with the sarvamai/sarvam-m model.

Here, the sarvamai model was very verbose, providing details that while were related to the question I asked, was not necessarily about the short story itself, with its response portraying it as being sidetracked.

Here, the model's response was definitely understandable, however, its verboseness from its self-reflectiveness reduced the relevance to the original prompt. This behavior was likely influenced by the high max\_tokens setting and the model's tendency toward reflective tone under moderate randomness (temperature=0.5, top\_p=0.7). As for bias, the factual and positive nature of the text make it practically nonexistent.

The output is below:

Okay, the user asked for a short story. Let me think about what kind of story to tell. They didn't specify any particular theme or genre, so I should keep it simple and engaging. Maybe something with a moral or a heartwarming message.

I need to make sure the story isn't too long. Let's aim for a few paragraphs. Maybe a folktale or a fable? Those are usually concise and have a clear message. Let's go with a fable. Animals as characters are relatable and easy to follow.

What's a common theme? Kindness, friendship, perseverance... Hmm. How about a story about helping others in need? That's a classic and positive message. Let's set it in a forest. Animals often live in forests in stories.

Main characters: Maybe a small creature, like a mouse, and a larger one, like a lion. The mouse helps the lion, and later the lion helps the mouse. That shows mutual aid. Wait, that's similar to the "The Lion and the Mouse" fable. Maybe I can put a different spin on it to avoid being too cliché.

Alternatively, maybe a different animal. A rabbit and a fox? Or a bird and a squirrel. Let's see. Let me brainstorm. A story where a small animal helps a larger one, and then the larger one returns the favor. That's the classic structure. But to make it original, maybe add a unique element.

Wait, the user might not mind a classic structure as long as it's told in an engaging way. Let's go with the lion and mouse idea but add some details to make it fresh. Maybe set it in a specific location, like a jungle in India to add cultural context. That way, it aligns with the user's focus on Indian culture.

So, the story could be set in the Western Ghats, a lush forest in India. The characters are a lion named Simha and a mouse named Chintu. Simha gets trapped in a hunter's net, and Chintu chews through the ropes to free him. Later, Simha saves Chintu from a hawk. The moral is that everyone has a role to play, regardless of size.

I need to make sure the names are appropriate. Simha means lion in Sanskrit and several Indian languages. Chintu is a common name for a mouse in Hindi. That adds authenticity. The setting in the Western Ghats gives a specific Indian location, which is good for cultural relevance.

Let me outline the story: Simha is a proud lion who catches a mouse, Chintu. Instead of eating him, Chintu begs for mercy, and Simha lets him go. Later, Simha is trapped in a net by hunters. Chintu hears his roars and comes to help, chewing the ropes. Simha is grateful and promises to help Chintu if needed. Later, when Chintu is chased by a hawk, Simha intervenes and saves him. The end.

That structure works. It's concise, has a clear beginning, middle, and end, and the moral is evident. The cultural elements are integrated naturally. I should write it in a simple, engaging style suitable for all ages. Make sure the language is clear and the story flows smoothly. Avoid complex sentences. Use dialogue to bring the characters to life.

Check for any cultural sensitivities. The Western Ghats are a real place, so that's accurate. The animals are common in Indian folklore. The names are appropriate. The message is positive and universal. No issues there.

Alright, time to put it all together in a friendly, conversational tone. Keep paragraphs short for readability. End with a moral that ties back to the theme of kindness and mutual aid. Make sure the story is around 150-200 words, which is short enough but still complete.

</think>

\*\*The Lion and the Mouse\*\*

In the heart of the Western Ghats, where mist clung to ancient trees, lived Simha, a proud lion, and Chintu, a tiny mouse. One day, Simha spotted Chintu scurrying near his den and roared, “Little one, why do you dare wander here?”

Chintu trembled but pleaded, “Great King, I mean no harm. I only seek crumbs.” Simha chuckled and spared him, saying, “Go, but remember—big ones help small ones.”

Weeks later, hunters trapped Simha in a metal net. He roared until his voice faded, but no one came. Unseen, Chintu nibbled at the ropes, his tiny teeth sawing tirelessly. At dawn, the net loosened, and Simha stumbled free. “Why help me, little one?” he murmured.

Chintu smiled. “Even kings forget—the forest thrives when we lift each other.”

Later, when a hawk swooped for Chintu, Simha’s thunderous roar sent the bird fleeing. From then on, the forest whispered their tale: \*Kindness, small or mighty, ripples forever\*.

\*\*Moral:\*\* No act of compassion is ever too small.

The second prompt was: “Can you give an extremely short summary of the first Ghostbuster’s movie?” It also had a temperature of 0.3, max\_tokens of 5000, a top\_p of 0.9, and with the meta-llama/Llama-3.1-8B-Instruct model.

Here, the model's response was clear and concise, making every word relevant to the prompt provided. As for behavior, the high max\_tokens setting didn’t have much of an impact, with the other settings (temperature=0.3, top\_p=0.9) causing the model to be less random and creative, getting to the point with fewer words. As for bias, everything here is correct, eliminating any bias.

The output is below:

The first Ghostbusters movie, released in 1984, follows three paranormal investigators (Peter Venkman, Ray Stantz, and Egon Spengler) who start a ghost-catching business in New York City. They soon find themselves battling supernatural entities and saving the world from an ancient Sumerian deity, Gozer.

The third prompt was: “You're in a dark, wooded path. What do you do?” It also had a temperature of 0.9, max\_tokens of 5000, a top\_p of 0.3, and with the meta-llama/Llama-3.1-8B-Instruct model model.

Here, the model's response was definitely understandable, but once again, its verboseness from its self-reflectiveness did take away from some of the prompt’s relevance, and a lot more so this time around. This behavior was likely influenced by the high max\_tokens setting and the model's tendency toward reflective tone under high randomness (temperature=0.9, top\_p=0.3). As for bias, the text isn’t targeting anyone or anything, positively or negatively, so there’s likely no bias in here.

The output is below:

Okay, so I'm in a dark, wooded path. Hmm, what should I do? Let me think. First, I need to stay calm. Panicking won't help. Maybe I should check if I have any light source. Do I have a phone with a flashlight? If yes, turning that on could help me see better. If not, maybe I can find something else, like a lighter or matches. Wait, but if it's really dark, maybe I should stay put and not wander around aimlessly. Getting lost in the woods at night is dangerous.

Also, I should listen for any sounds. Are there animals around? Maybe I should make noise to scare them away, but that might attract more attention. Or maybe stay quiet and move slowly. I need to think about directions. Do I know which way I came from? If I can remember the direction I was heading, maybe I can retrace my steps. But if I'm disoriented, that's tricky.

What about using the stars? If the sky is clear, the North Star could help me orient myself. But if it's cloudy, that's not an option. Maybe look for any landmarks or signs. Are there any trails or markers nearby? If I can find a trail marker, I might know which way to go. If not, maybe follow a stream or something, since they often lead to civilization.

I should also consider my physical state. Am I injured? Do I have enough energy to keep moving? If I'm tired or hurt, staying in place might be safer until help arrives. But if I can move, maybe try to find a road or a clearing where someone might see me. Also, having a whistle could be useful to signal for help. If I have one, blowing it might attract attention.

Wait, but what if I'm completely alone and there's no one around? Then maybe staying put and waiting for daylight is better. Moving around in the dark increases the risk of getting lost or injured. But if I have a way to signal, like a phone, even if I can't call, maybe using the flashlight to send SOS signals periodically.

Another thought: if there's a trail, maybe follow it. Trails usually lead somewhere. But if it's a dark path, maybe the trail isn't well-marked. I should be careful not to step on anything dangerous, like roots or holes. Also, watch out for wildlife. If there are animals, making noise might deter them, but again, could also attract them.

I should also think about my clothing. Am I warm enough? Hypothermia is a risk if I'm out all night. Maybe find shelter, like under a tree or a rock overhang, to protect from the elements. But in a wooded area, there might be risks like falling branches or animals.

Wait, maybe I should prioritize. First, ensure I'm safe from immediate dangers. Then, try to find a way to communicate or signal for help. If I can't, then decide whether to stay put or move towards a potential source of safety. But how do I know which is better? If I'm near a road, moving towards it might be better. If I'm deep in the woods, staying put might be safer.

Also, using natural resources. For example, dry leaves can be used to start a fire if I have a way to ignite them. But starting a fire in the woods might be risky, especially if it's dry. Maybe not the best idea unless absolutely necessary.

I should also consider my mental state. Staying calm is crucial. Panic leads to poor decisions. Maybe take deep breaths, assess the situation, and methodically check for resources or options.

In summary, possible steps: 1. Stay calm. 2. Check for light sources. 3. Listen for sounds and assess surroundings. 4. Try to orient using stars or landmarks. 5. Decide to stay put or move towards a potential exit. 6. Use any available tools to signal for help. 7. Find shelter if necessary. 8. Wait for daylight if possible.

</think>

In a dark, wooded path, prioritize safety and calm decision-making. Here's a structured approach:

1. \*\*Stay Calm\*\*: Panic impairs judgment. Take deep breaths to maintain focus.

2. \*\*Assess Resources\*\*:

- Check for a phone flashlight or light source. Use it sparingly to conserve battery.

- If no light, listen carefully for nearby sounds (e.g., water, roads, wildlife).

3. \*\*Orient Yourself\*\*:

- Recall your direction of travel. Retrace steps if possible.

- Look for landmarks, trails, or markers. Follow a stream/creek, as they often lead to civilization.

- Use the North Star (if visible) or moon position to estimate direction.

4. \*\*Signal for Help\*\*:

- Blow a whistle (if available) in three short bursts (universal distress signal).

- Use your phone flashlight to flash SOS (three short, three long, three short) if visible to rescuers.

5. \*\*Decide to Stay or Move\*\*:

- \*\*Stay Put\*\* if you’re disoriented, injured, or if help might be nearby. Remain in a visible spot (e.g., near a trail marker).

- \*\*Move Cautiously\*\* only if you’re confident of a direction (e.g., toward a distant road sound). Watch for hazards (roots, slopes).

6. \*\*Shelter and Warmth\*\*:

- If staying overnight, find natural shelter (e.g., under a rock overhang) and insulate with leaves/branches.

- Avoid hypothermia by staying dry and covered.

7. \*\*Wait for Daylight\*\*: If no immediate help arrives, conserve energy and wait for morning to navigate or signal.

\*\*Key Considerations\*\*: Avoid risky actions like starting a fire in dry conditions. Prioritize visibility and safety over movement unless certain of a safe route.

The fourth prompt was: “Explain recursion like I’m five.” It also had a temperature of 0.9, max\_tokens of 5000, a top\_p of 0.3, and with the sarvamai/sarvam-m model.

Here, while the model's response was definitely understandable, its verboseness from its continuous and unnecessary examples actually make the explanation unclear. This behavior was likely influenced by the high max\_tokens setting and the model's tendency toward reflective tone under high creativity but low randomness (temperature=0.9, top\_p=0.3), with the creativity motivating the numerous examples, but the lack of randomness putting those examples in various large paragraphs. As for bias, the factual and positive nature of the text make it practically nonexistent.

The output is below:

Okay, so I need to explain recursion to a five-year-old. Let me start by thinking about how a child that age understands things. They like stories, games, and simple analogies. Maybe using something they know, like a game or a story.

Recursion is when a function calls itself, right? But how to make that simple. Maybe use a real-life example. Like a mirror reflecting a mirror, or a dollhouse inside a dollhouse. Wait, maybe a story about a rabbit or something.

Wait, the classic example is the factorial function, but that's too mathy. Maybe a story where someone does something that requires doing the same thing again. Like, if you have to count down from 5 to 1, but each time you count down, you have to do it again for the next number. Hmm, not sure.

Or maybe a game where you have to take a step back each time you take a step forward. Like, if you want to reach the end of a hallway, you have to first go halfway, then halfway of that, and so on. But that's more like a loop or infinite recursion.

Wait, maybe using a tree. Each branch splits into smaller branches, and each of those splits again. So the tree is made up of smaller trees. That's recursion. But how to explain that to a five-year-old.

Alternatively, think of a song that repeats a line, like "This old man..." where each verse repeats the previous one. But that's more repetition than recursion.

Wait, maybe a story where a character needs to do something that requires doing the same thing again. Like, if you want to build a tower with blocks, each time you add a block, you have to build a smaller tower on top. So the tower is made of smaller towers. That's recursion.

But how to phrase it simply. Maybe: "Imagine you have a big puzzle. To solve it, you need to solve a smaller puzzle first. But that smaller puzzle needs you to solve an even smaller one. You keep doing this until the puzzle is so small you can solve it easily. Then you put all the pieces together to solve the big puzzle."

But maybe that's too abstract. Let's think of a physical activity. Like, if you want to fold a piece of paper in half many times, each time you fold it, you have to fold the smaller part again. But that's more like a loop.

Wait, recursion is when the solution depends on solving a smaller version of the same problem. So maybe a story where a child needs to count down from 5, but each time they say a number, they have to count down from the next number. Like, to say "5", you first say "4", and to say "4", you say "3", etc., until you reach "1". But that's actually recursion because each step requires the next step.

But how to explain that. Maybe: "If you want to count down from 5, you first count down from 4, and to count down from 4, you count down from 3, and so on until you get to 1. Each time, you're doing the same thing but with a smaller number."

But maybe using a physical object. Like, if you have a box inside a box inside a box, and to open the biggest box, you have to open the smaller one inside it, and so on until you get to the smallest box. Then you can take out the treasure.

Alternatively, think of a game where you have to jump over a series of hurdles. Each time you jump over one, you have to jump over the next one, which is smaller. So each jump depends on the previous one.

Wait, maybe the best way is to use a simple analogy they can visualize. Like a Russian nesting doll. Each doll contains a smaller one, and to get to the smallest, you have to open each one step by step. So the big doll is made up of smaller dolls, which are made up of even smaller ones. That's recursion.

So putting it all together: "Imagine you have a big doll. Inside it is a smaller doll, and inside that is an even smaller one. To get to the tiniest doll, you have to open each one, starting from the biggest. Each time you open a doll, you find another one inside that you have to open. It's like solving a puzzle where each step needs you to solve a smaller version of the same puzzle."

But maybe even simpler. "Recursion is like when you have a box inside a box inside a box. To get the toy inside, you have to open the biggest box, then the next one, and keep doing it until you find the toy. Each time you open a box, you have to open another box inside it."

Yes, that's better. It's a physical example they can imagine. Each step requires doing the same thing again but with a smaller version. So recursion is when a problem is solved by solving a smaller version of the same problem.

I think that's the key point. So the explanation should involve a simple, relatable example where each step involves doing the same thing again but on a smaller scale, until you reach the simplest case.

</think>

Okay, imagine you have a box of blocks, and each block has a smaller box inside it. To get to the tiniest block, you have to open the biggest box, then the next one inside it, and keep opening boxes until you find the smallest one. Once you do, you can finally play with it! Recursion is like that—it’s when you solve a problem by breaking it into smaller, similar problems, until it’s super simple. Just like opening boxes inside boxes! 📦✨

The fifth prompt was: “How is the AI system tested for fairness before it is deployed?” It also had a temperature of 0.7, max\_tokens of 5000, a top\_p of 0.3, and with the meta-llama/Llama-3.1-8B-Instruct model.

Once again, the model's response was coherent and readable, possibly more so than usual since it uses shorter paragraphs and even numbered bullet points to get its point across. This is probably because of the first two settings (temperature=0.7, top\_p=0.3), which would allow it to be more creative and random with how it approaches . As for bias, it goes for a generalized view of how AI systems are tested for fairness, so no bias towards how a specific one is made or how others do a better job of testing than others.

The output is below:

Testing an AI system for fairness before deployment involves a multi-step process that includes:

1. \*\*Data Analysis\*\*: Review the data used to train the AI model to identify potential biases, such as:

\* Data collection methods and sources.

\* Data quality and completeness.

\* Representation of different groups or demographics.

2. \*\*Bias Detection\*\*: Use techniques such as:

\* \*\*Fairness metrics\*\*: Calculate metrics like disparate impact, equalized odds, and demographic parity to measure bias.

\* \*\*Bias detection tools\*\*: Utilize tools like AI Fairness 360, Fairlearn, or Aequitas to identify biases in the model.

3. \*\*Sensitivity Analysis\*\*: Test the model's performance on different subgroups or demographics to identify potential biases.

4. \*\*Model Interpretability\*\*: Analyze the model's decision-making process to understand how it arrives at its predictions.

5. \*\*Human Evaluation\*\*: Have human evaluators review the model's output to identify potential biases or unfairness.

6. \*\*Testing for Fairness\*\*: Use techniques like:

\* \*\*Counterfactual analysis\*\*: Examine how the model's predictions would change if certain characteristics were different.

\* \*\*What-if analysis\*\*: Test how the model would perform if certain biases were removed.

7. \*\*Regular Auditing\*\*: Continuously monitor the model's performance and fairness after deployment to identify any biases that may emerge over time.

8. \*\*Human Oversight\*\*: Implement human oversight and review processes to ensure that the model's decisions are fair and unbiased.

9. \*\*Transparency and Explainability\*\*: Provide clear explanations for the model's decisions and ensure that stakeholders understand how the model works.

10. \*\*Continuous Improvement\*\*: Regularly update and refine the model to address any biases or unfairness that are identified.

Some popular fairness testing frameworks and tools include:

\* \*\*AI Fairness 360\*\*: A library of algorithms and metrics for detecting and mitigating bias in AI models.

\* \*\*Fairlearn\*\*: A library of algorithms and metrics for detecting and mitigating bias in AI models.

\* \*\*Aequitas\*\*: A library of algorithms and metrics for detecting and mitigating bias in AI models.

\* \*\*TensorFlow Fairness\*\*: A library of algorithms and metrics for detecting and mitigating bias in AI models.

\* \*\*Scikit-learn\*\*: A machine learning library that includes tools for detecting and mitigating bias in AI models.

It's worth noting that fairness testing is an ongoing process, and it's essential to continuously monitor and update the model to ensure that it remains fair and unbiased over time.

#### **Project Reflections**

Overall, the model performs fairly well in most prompts it’s given, providing coherent, complete responses, especially for shorter lengthened prompts where it manages to respond near instantly. However, I did notice it took quite a bit more time for it to process prompts with only slightly more tokens, especially in ones involving hypothetical scenarios, causing a lot of timeouts. For future use, I’d definitely want to use a model I trained myself to be AI that the user interacts with, as a more specially fine-tuned model will allow me to have more control over the personality and performance of my model, and therefore the app. Also, the inclusion of more AI models that can act better on more specific requests can allow for a more seamless experience.